

Claims:

1. A hard alloy which comprises 5 to 50% by volume of a metallic binder phase comprising at least one element  
5 selected from cobalt, nickel and iron as a main component, 0 to 40% by volume of a cubic crystal compound comprising at least one compound selected from a carbide, nitride and mutual solid solution of a metal of Group IVB, VB or VIB of the Periodic Table, and the remainder being hexagonal  
10 tungsten carbide and inevitable impurities,  
    wherein at least one specific element(s) selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, manganese and rhenium is dissolved in the crystal of the  
15 hexagonal tungsten carbide as a solid solution in an amount of 0.1 to 3.0% by weight based on the amount of the tungsten carbide.
2. The hard alloy according to Claim 1, wherein the specific element(s) is at least one selected from the group  
20 consisting of titanium, zirconium, hafnium and vanadium.
3. The hard alloy according to Claim 1, wherein the specific element(s) is at least one selected from the group consisting of niobium and tantalum.
4. The hard alloy according to Claim 1, wherein the  
25 specific element(s) is chromium.
5. The hard alloy according to Claim 1, wherein the specific element(s) is at least one selected from the group consisting of molybdenum, manganese and rhenium.
6. The hard alloy according to Claim 1, wherein the  
30 specific element(s) is at least one selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium and tantalum, and the cubic crystal compound is contained in an amount of 1% by volume or less.
7. The hard alloy according to Claim 1, wherein the  
35 specific element(s) is chromium, and chromium is contained in an amount of 0.1 to 10% by weight based on the total

amount of the hard alloy.

8. The hard alloy according to Claim 1, wherein the specific element(s) is at least one of manganese and rhenium, and the at least one of manganese and rhenium is  
5 contained in an amount of 0.1 to 10% by weight based on the total amount of the hard alloy.

9. A tungsten-based complex carbide powder which comprises a complex carbide powder containing tungsten, carbon, and at least one specific element(s) selected from the group  
10 consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, manganese and rhenium, wherein the complex carbide powder contains 80% by volume or more of hexagonal tungsten carbide, and the specific element(s) is dissolved in the crystal of the  
15 hexagonal tungsten carbide in an amount of 0.1 to 3.0% by weight.

10. The tungsten-based complex carbide powder according to Claim 9, wherein the powder contains particles of a cubic crystal compound comprising tungsten, at least one of  
20 carbon and nitrogen, and at least one selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium and tantalum in an amount of less than 20% by volume.

11. The tungsten-based complex carbide powder according to  
25 Claim 9, wherein the crystal of the hexagonal tungsten carbide has at least one of a lattice constant of a axis of 0.2910 nm or longer and a lattice constant of c axis of 0.2840 nm or longer.